



SEQUENCE LISTING

<110> Currie, Mark G.
Mahajan-Miklos, Shalina

<120> METHODS AND COMPOSITIONS FOR THE
TREATMENT OF GASTROINTESTINAL DISORDERS

<130> 14184-039001

<140> US 10/766,735
<141> 2004-01-28

<150> US 60/443,098
<151> 2003-01-28

<150> US 60/471,288
<151> 2003-05-15

<150> US 60/519,460
<151> 2003-11-12

<160> 124

<170> FastSEQ for Windows Version 4.0

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<212> PRT
<213> Escherichia coli

<400> 1
Asn Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

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<212> PRT
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Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Ala Gly
1 5 10 15
Cys Tyr

<210> 3
<211> 18
<212> PRT
<213> Escherichia coli

<400> 3

Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Tyr Pro Ala Cys Ala Gly
 1 5 10 15
 Cys Asn

<210> 4
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 <212> PRT
 <213> Citrobacter freundii

<400> 4
 Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Ala Gly
 1 5 10 15
 Cys Tyr

<210> 5
 <211> 30
 <212> PRT
 <213> Yersinia enterocolitica

<400> 5
 Gln Ala Cys Asp Pro Pro Ser Pro Pro Ala Glu Val Ser Ser Asp Trp
 1 5 10 15
 Asp Cys Cys Asp Val Cys Cys Asn Pro Ala Cys Ala Gly Cys
 20 25 30

<210> 6
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 Lys Ala Cys Asp Thr Gln Thr Pro Ser Pro Ser Glu Glu Asn Asp Asp
 1 5 10 15
 Trp Cys Cys Glu Val Cys Cys Asn Pro Ala Cys Ala Gly Cys
 20 25 30

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 Gln Glu Thr Ala Ser Gly Gln Val Gly Asp Val Ser Ser Ser Thr Ile
 1 5 10 15
 Ala Thr Glu Val Ser Glu Ala Glu Cys Gly Thr Gln Ser Ala Thr Thr
 20 25 30
 Gln Gly Glu Asn Asp Trp Asp Trp Cys Cys Glu Leu Cys Cys Asn Pro
 35 40 45
 Ala Cys Phe Gly Cys
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<210> 8
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 <213> Yersinia kristensenii

<400> 8
Ser Asp Trp Cys Cys Glu Val Cys Cys Asn Pro Ala Cys Ala Gly Cys
1 5 10 15

<210> 9
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Ile Asp Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Phe Gly Cys Leu
1 5 10 15
Asn

<210> 10
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<213> Vibrio mimicus

<400> 10
Ile Asp Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Phe Gly Cys Leu
1 5 10 15
Asn

<210> 11
<211> 18
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<400> 11
Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Ala Pro
1 5 10 15
Cys Tyr

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<213> Vibrio cholerae

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Ile Asp Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Phe
1 5 10

<210> 13
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Ile Asp Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Phe Gly
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<210> 14

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Ile Asp Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Phe Gly Cys Leu
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Asn

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Ile Asp Arg Cys Glu Ile Cys Cys Asn Pro Ala Cys Phe Gly Cys Leu
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Asn

<210> 16
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Asp Trp Asp Cys Cys Asp Val Cys Cys Asn Pro Ala Cys Ala Gly Cys
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Asp Trp Asp Cys Cys Asp Val Cys Cys Asn Pro Ala Cys Ala Gly Cys
1 5 10 15

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1 5 10 15
Cys

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Trp Asp Trp Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Phe Gly Cys

1

5

10

15

<210> 20
<211> 72
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<213> Escherichia coli

<400> 20
Met Lys Lys Leu Met Leu Ala Ile Phe Ile Ser Val Leu Ser Phe Pro
1 5 10 15
Ser Phe Ser Gln Ser Thr Glu Ser Leu Asp Ser Ser Lys Glu Lys Ile
20 25 30
Thr Leu Glu Thr Lys Lys Cys Asp Val Val Lys Asn Asn Ser Glu Lys
35 40 45
Lys Ser Glu Asn Met Asn Asn Thr Phe Tyr Cys Cys Glu Leu Cys Cys
50 55 60
Asn Pro Ala Cys Ala Gly Cys Tyr
65 70

<210> 21
<211> 72
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<213> Escherichia coli

<400> 21
Met Lys Lys Ser Ile Leu Phe Ile Phe Leu Ser Val Leu Ser Phe Ser
1 5 10 15
Pro Phe Ala Gln Asp Ala Lys Pro Val Glu Ser Ser Lys Glu Lys Ile
20 25 30
Thr Leu Glu Ser Lys Lys Cys Asn Ile Ala Lys Lys Ser Asn Lys Ser
35 40 45
Gly Pro Glu Ser Met Asn Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys
50 55 60
Asn Pro Ala Cys Thr Gly Cys Tyr
65 70

<210> 22
<211> 71
<212> PRT
<213> Yersinia enterocolitica

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Met Lys Lys Ile Val Phe Val Leu Val Leu Met Leu Ser Ser Phe Gly
1 5 10 15
Ala Phe Gly Gln Glu Thr Val Ser Gly Gln Phe Ser Asp Ala Leu Ser
20 25 30
Thr Pro Ile Thr Ala Glu Val Tyr Lys Gln Ala Cys Asp Pro Pro Leu
35 40 45
Pro Pro Ala Glu Val Ser Ser Asp Trp Asp Cys Cys Asp Val Cys Cys
50 55 60
Asn Pro Ala Cys Ala Gly Cys
65 70

<210> 23
<211> 54
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<213> Artificial Sequence

<220>
<223> Synthetically generated amino terminal leader sequence

<400> 23
Met Lys Lys Ser Ile Leu Phe Ile Phe Leu Ser Val Leu Ser Phe Ser
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Pro Phe Ala Gln Asp Ala Lys Pro Val Glu Ser Ser Lys Glu Lys Ile
20 25 30
Thr Leu Glu Ser Lys Lys Cys Asn Ile Ala Lys Lys Ser Asn Lys Ser
35 40 45
Gly Pro Glu Ser Met Asn
50

<210> 24
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1 5 10 15
Pro Phe Ala Gln Asp Ala Lys Pro Ala Gly Ser Ser Lys Glu Lys Ile
20 25 30
Thr Leu Glu Ser Lys Lys Cys Asn Ile Val Lys Lys Ser Asn Lys Ser
35 40 45
Gly Pro Glu Ser Met
50

<210> 25
<211> 53
<212> PRT
<213> Escherichia coli

<400> 25
Met Lys Lys Ser Ile Leu Phe Ile Phe Leu Ser Val Leu Ser Phe Ser
1 5 10 15
Pro Phe Ala Gln Asp Ala Lys Pro Ala Gly Ser Ser Lys Glu Lys Ile
20 25 30
Thr Leu Glu Ser Lys Lys Cys Asn Ile Val Lys Lys Asn Asn Glu Ser
35 40 45
Ser Pro Glu Ser Met
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<210> 26
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
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<400> 26

Asn Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 27
<211> 19
<212> PRT
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<400> 27
Asn Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Trp
1 5 10 15
Gly Cys Tyr

<210> 28
<211> 19
<212> PRT
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<220>
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<400> 28
Asn Ser Ser Asn Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 29
<211> 14
<212> PRT
<213> Artificial Sequence

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<400> 29
Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 30
<211> 14
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<400> 30
Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Trp Gly Cys Tyr
1 5 10

<210> 31
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<400> 31
Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 32
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<400> 32
Asn Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
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<210> 33
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Asn Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Trp Gly Cys Tyr
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Asn Cys Cys Glu Phe Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10 15

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<400> 35

Asn Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
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<211> 15

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<400> 36

Asn Cys Cys Glu Trp Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
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<210> 37

<211> 15

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<400> 37

Asn Cys Cys Glu Arg Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
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<210> 38

<211> 15

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<400> 38

Asn Cys Cys Glu Lys Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
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<210> 39

<211> 21

<212> PRT

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<400> 39

Asn Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Thr
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Gly Cys Tyr Asp Phe
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<210> 40

<211> 21

<212> PRT

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<400> 40
Asn Ser Ser Asn Tyr Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Trp
1 5 10 15
Gly Cys Tyr Asp Phe
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<400> 41
Asn Ser Ser Asn Tyr Cys Cys Glu Phe Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr Asp Phe
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<211> 21
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1 5 10 15
Gly Cys Tyr Asp Phe
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<210> 43
<211> 21
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<220>
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<400> 43
Asn Ser Ser Asn Tyr Cys Cys Glu Trp Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr Asp Phe
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<210> 44
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1 5 10 15
Gly Cys Tyr Asp Phe
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<211> 21
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<400> 45
Asn Ser Ser Asn Tyr Cys Cys Glu Lys Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr Asp Phe
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<210> 46
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<400> 46
Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp Phe
1 5 10 15

<210> 47
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Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Trp Gly Cys Tyr Asp Phe
1 5 10 15

<210> 48
<211> 16
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Cys Cys Glu Phe Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp Phe

1 5 10 15

<210> 49
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1 5 10 15

<210> 50
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<212> PRT
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Cys Cys Glu Trp Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp Phe
1 5 10 15

<210> 51
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<400> 51
Cys Cys Glu Arg Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp Phe
1 5 10 15

<210> 52
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<400> 52
Cys Cys Glu Lys Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp Phe
1 5 10 15

<210> 53
<211> 17
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<400> 53
Asn Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp
1 5 10 15
Phe

<210> 54
<211> 17
<212> PRT
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Asn Cys Cys Glu Leu Cys Cys Asn Pro Ala Cys Trp Gly Cys Tyr Asp
1 5 10 15
Phe

<210> 55
<211> 17
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Asn Cys Cys Glu Phe Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp
1 5 10 15
Phe

<210> 56
<211> 17
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1 5 10 15
Phe

<210> 57
<211> 17
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<220>
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<400> 57
 Asn Cys Cys Glu Trp Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp
 1 5 10 15
 Phe

<210> 58
 <211> 17
 <212> PRT
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<220>
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<400> 58
 Asn Cys Cys Glu Arg Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp
 1 5 10 15
 Phe

<210> 59
 <211> 17
 <212> PRT
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<220>
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<400> 59
 Asn Cys Cys Glu Lys Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr Asp
 1 5 10 15
 Phe

<210> 60
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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetically generated oligonucleotide

<400> 60
 cacaccatat gaagaaatca atattatcca tttttctttc tg 42

<210> 61
 <211> 46
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetically generated oligonucleotide

<400> 61
 cacacacctgga gttaggtctc catgcttca ggaccacttt tattac 46

<210> 62

<211> 69
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetically generated oligonucleotide

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 gcatgaatag tagcaattac tgctgtgaat tgtgttgtaa tcctgcttgc accgggtgct 60
 attaataac 69

<210> 63
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 <212> DNA
 <213> Artificial Sequence

<220>
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<400> 63
 tcgagttatt aatagcaccc ggtacaagca ggattacaac acaattcaca gcagtaattg 60
 ctactattc 69

<210> 64
 <211> 69
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetically generated oligonucleotide

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 gcatgaatag tagcaattac tgctgtgaat attgttgtaa tcctgcttgc accgggtgct 60
 attaataac 69

<210> 65
 <211> 69
 <212> DNA
 <213> Artificial Sequence

<220>
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 tcgagttatt aatagcaccc ggtacaagca ggattacaac aatattcaca gcagtaattg 60
 ctactattc 69

<210> 66
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<220>
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<221> VARIANT
 <222> 9

<223> Xaa = any amino acid; or Xaa = any amino acid other than Leu; or Xaa = Phe, Trp, and Tyr; or selected from from any other natural or non-natural aromatic amino acid; or Xaa = Tyr

<221> VARIANT

<222> 1, 2, 3, 4, 5

<223> Xaa1 = Asn, Xaa2 = Ser, Xaa3 = Ser, Xaa4 = Asn, Xaa5 = Tyr; or Xaa1-Xaa5 is missing; or Xaa1-Xaa4 is missing; or Xaa1 -Xaa3 is missing; or Xaa1 and Xaa2 is missing; or Xaa1 is missing

<221> VARIANT

<222> 19, 20, 21

<223> Xaa 20 = Asp, Xaa21 = Phe or missing; or Xaa20 = Asn or Glu and Xaa21 is missing; or X19-Xaa21 is missing

<221> VARIANT

<222> (1)...(21)

<223> Xaa = Any Amino Acid

<400> 66

Xaa	Xaa	Xaa	Xaa	Xaa	Cys	Cys	Glu	Xaa	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1					5				10					15	
Gly	Cys	Tyr	Xaa	Xaa											
														20	

<210> 67

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 67

Gln	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Tyr	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1					5				10					15	
Gly	Cys	Tyr													

<210> 68

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 68

Asn	Thr	Ser	Asn	Tyr	Cys	Cys	Glu	Tyr	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1					5				10					15	
Gly	Cys	Tyr													

<210> 69

<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<400> 69
Asn Leu Ser Asn Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 70
<211> 19
<212> PRT
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<220>
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<400> 70
Asn Ile Ser Asn Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 71
<211> 19
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<213> Artificial Sequence

<220>
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<400> 71
Asn Ser Ser Gln Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 72
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
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<400> 72
Ser Ser Asn Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr Gly
1 5 10 15
Cys Tyr

<210> 73
<211> 19

<212> PRT
<213> Artificial Sequence

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<400> 73
Gln Ser Ser Gln Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 74
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Ser Ser Gln Tyr Cys Cys Glu Tyr Cys Cys Asn Pro Ala Cys Thr Gly
1 5 10 15
Cys Tyr

<210> 75
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
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<400> 75
Asn Ser Ser Asn Tyr Cys Cys Glu Ala Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 76
<211> 19
<212> PRT
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<400> 76
Asn Ser Ser Asn Tyr Cys Cys Glu Arg Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 77
<211> 19
<212> PRT

<213> Artificial Sequence

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<223> Synthetically generated peptide

<400> 77

Asn Ser Ser Asn Tyr Cys Cys Glu Asn Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 78

<211> 19

<212> PRT

<213> Artificial Sequence

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<223> Synthetically generated peptide

<400> 78

Asn Ser Ser Asn Tyr Cys Cys Glu Asp Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 79

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 79

Asn Ser Ser Asn Tyr Cys Cys Glu Cys Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 80

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 80

Asn Ser Ser Asn Tyr Cys Cys Glu Gln Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 81

<211> 19

<212> PRT

<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<400> 81
Asn Ser Ser Asn Tyr Cys Cys Glu Glu Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 82
<211> 19
<212> PRT
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<220>
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<400> 82
Asn Ser Ser Asn Tyr Cys Cys Glu Gly Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 83
<211> 19
<212> PRT
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<220>
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<400> 83
Asn Ser Ser Asn Tyr Cys Cys Glu His Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 84
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<400> 84
Asn Ser Ser Asn Tyr Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 85
<211> 19
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 85

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Lys	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1				5				10						15	
Gly	Cys	Tyr													

<210> 86

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 86

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Met	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1					5				10					15	
Gly	Cys	Tyr													

<210> 87

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 87

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Phe	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1					5				10					15	
Gly	Cys	Tyr													

<210> 88

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 88

Asn	Ser	Ser	Asn	Tyr	Cys	Cys	Glu	Pro	Cys	Cys	Asn	Pro	Ala	Cys	Thr
1					5				10					15	
Gly	Cys	Tyr													

<210> 89

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 89

Asn Ser Ser Asn Tyr Cys Cys Glu Ser Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 90

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 90

Asn Ser Ser Asn Tyr Cys Cys Glu Thr Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 91

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 91

Asn Ser Ser Asn Tyr Cys Cys Glu Trp Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 92

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 92

Asn Ser Ser Asn Tyr Cys Cys Glu Val Cys Cys Asn Pro Ala Cys Thr
1 5 10 15
Gly Cys Tyr

<210> 93

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 93
Cys Cys Glu Ala Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 94
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
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<400> 94
Cys Cys Glu Arg Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 95
<211> 14
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<400> 95
Cys Cys Glu Asn Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 96
<211> 14
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<400> 96
Cys Cys Glu Asp Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 97
<211> 14
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<400> 97
Cys Cys Glu Cys Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 98
<211> 14
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<400> 98
Cys Cys Glu Gln Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 99
<211> 14
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<220>
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<400> 99
Cys Cys Glu Glu Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 100
<211> 14
<212> PRT
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Cys Cys Glu Gly Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 101
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<400> 101
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1 5 10

<210> 102
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
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<400> 102
Cys Cys Glu Ile Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 103

<211> 14
<212> PRT
<213> Artificial Sequence

<220>
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<400> 103
Cys Cys Glu Lys Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 104
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
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<400> 104
Cys Cys Glu Met Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 105
<211> 14
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<213> Artificial Sequence

<220>
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<400> 105
Cys Cys Glu Phe Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 106
<211> 14
<212> PRT
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<400> 106
Cys Cys Glu Pro Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 107
<211> 14
<212> PRT
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<400> 107
Cys Cys Glu Ser Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr

1 5 10

<210> 108
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
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<400> 108
Cys Cys Glu Thr Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 109
<211> 14
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<213> Artificial Sequence

<220>
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<400> 109
Cys Cys Glu Trp Cys Cys Asn Pro Ala Cys Thr Gly Cys Tyr
1 5 10

<210> 110
<211> 14
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<213> Artificial Sequence

<220>
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<400> 110
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1 5 10

<210> 111
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<212> PRT
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<220>
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<400> 111
Gln His Asn Pro Arg
1 5

<210> 112
<211> 6
<212> PRT
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<220>
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<400> 112
Val Gln His Asn Pro Arg
1 5

<210> 113
<211> 7
<212> PRT
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<220>
<223> Synthetically generated peptide

<400> 113
Val Arg Gln His Asn Pro Arg
1 5

<210> 114
<211> 8
<212> PRT
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<220>
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<400> 114
Val Arg Gly Gln His Asn Pro Arg
1 5

<210> 115
<211> 9
<212> PRT
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<220>
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<400> 115
Val Arg Gly Pro Gln His Asn Pro Arg
1 5

<210> 116
<211> 10
<212> PRT
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<220>
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<400> 116
Val Arg Gly Pro Arg Gln His Asn Pro Arg
1 5 10

<210> 117
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<400> 117
Val Arg Gly Pro Arg Arg Gln His Asn Pro Arg
1 5 10

<210> 118
<211> 6
<212> PRT
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<220>
<223> Synthetically generated peptide

<400> 118
Arg Gln His Asn Pro Arg
1 5

<210> 119
<211> 21
<212> PRT
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<220>
<223> Synthetically generated peptide

<221> VARIANT
<222> 1, 2, 3, 4, 5, 8, 9, 12, 13, 14, 17, 19
<223> Xaa = any amino acid

<400> 119
Xaa Xaa Xaa Xaa Xaa Cys Cys Xaa Xaa Cys Cys Xaa Xaa Cys Xaa
1 5 10 15
Xaa Cys Xaa Xaa Xaa
20

<210> 120
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<221> VARIANT
<222> 1, 2, 3, 4, 5
<223> Xaa1 = Asn, Xaa2 = Ser, Xaa3 = Ser, Xaa4 = Asn,
Xaa5 = Tyr or missing; or Xaa1- Xaa4 is missing
and Xaa5 = Asn

<221> VARIANT
<222> 8
<223> Xaa = Glu or Asp

<221> VARIANT
<222> 9
<223> Xaa = Leu, Ile, Val, Trp, Tyr or Phe

<221> VARIANT
<222> 16
<223> Xaa = Thr, Ala, or Trp

<221> VARIANT
<222> 19
<223> Xaa = Trp, Tyr, Or Leu or is missing

<221> VARIANT
<222> 20, 21
<223> Xaa20 = Asp, Xaa21 = Phe

<400> 120
Xaa Xaa Xaa Xaa Xaa Cys Cys Xaa Xaa Cys Cys Asn Pro Ala Cys Xaa
1 5 10 15
Gly Cys Xaa Xaa Xaa
20

<210> 121
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<400> 121
Asn Ser Ser Asn Tyr
1 5

<210> 122
<211> 30
<212> PRT
<213> Yersinia enterocolitica

<400> 122
Gln Ala Cys Asp Pro Pro Leu Pro Pro Ala Glu Val Ser Ser Asp Trp
1 5 10 15
Asp Cys Cys Asp Val Cys Cys Asn Pro Ala Cys Ala Gly Cys
20 25 30

<210> 123
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<400> 123
Lys Lys Lys Lys Lys Lys
1 5

<210> 124
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<400> 124
Asp Lys Lys Lys Lys Lys Lys
1 5